UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/758,053 | 01/15/2004 | Richard Reynolds | 830_011 | 5101 |

25191 7590 11/01/2007

BURR & BROWN
PO BOX 7068
SYRACUSE, NY 13261-7068

| EXAMINER | |
|---|---|
| WEST, JEFFREY R | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2857 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 11/01/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/758,053 | REYNOLDS ET AL. | |
| | Examiner | Art Unit | |
| | Jeffrey R. West | 2857 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-5 and 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

**1.** This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### *Response to Amendment*

2. In view of the After Final Response filed on September 26, 2007, PROSECUTION IS HEREBY REOPENED. A new grounds of rejection is set forth below.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Cisco Systems, "Evaluate Network Performance with Cisco IOS® Service Assurance Agent" (Hereafter "Cisco") in view of Magalhaes et al., "Transport Level Mechanisms for Bandwidth Aggregation on Mobile Hosts", and U.S. Patent Application Publication No. 2003/0086425 to Bearden et al. and further in view of U.S. Patent No. 6,665,317 to Scott.

With respect to claim 1, Cisco discloses a method of assessing speech quality transmitted via a packet based telecommunications network (i.e. voice over IP) (page 66) comprising the steps of storing a sequence of intercepted packets associated with a call (i.e. VoIP call) (page 70), each packet containing speech data (i.e. voice) (pages 8 and 66), and an indication of a transmission time of said packet (i.e. STx) (page 65); storing with each intercepted packet an indication of an intercept time of said packet (i.e. RTx) (page 65); extracting a set of parameters from said sequence of packets wherein the extracting step comprises the sub steps of generating a jitter parameter (i.e. JitterSD) for each of a sequence of stored packets in dependence upon the difference between the transmission time of a stored packet (i.e. ST2) and the transmission time of a preceding stored packet of the sequence (i.e. ST1); and the difference between the intercept time of said stored packet (i.e. RT2) and the intercept time of said preceding packet (RT1) (page 65); and generating a consecutive positive jitter parameter (i.e. NumOfPositivesSD) for said stored packet in dependence upon the polarity of said jitter parameter for said stored packet and the polarity of said jitter parameter for immediately preceding stored packets wherein the consecutive positive jitter parameter defines the number of

immediately preceding stored packets for which a polarity of the jitter parameter is positive (pages 66 and 72).

With respect to claim 2, Cisco discloses generating a plurality of consecutive positive jitter parameters for a plurality of said stored packets and determining a maximum value of said plurality of said consecutive jitter parameters (i.e. MaxOfPositivesSD) (page 73).

With respect to claim 9, Cisco discloses an apparatus for assessing speech quality transmitted via a packet based telecommunications network (i.e. voice over IP) (page 66) comprising means, such as an object-oriented logic language probe in accordance with a process agent deployed and run on customer presence equipment (i.e. CPE) (pages 165-172) including a computer readable medium (i.e. memory) carrying the instructions to carry out the method when executed by a CPU (pages 143-144 and 154), for capturing (i.e. sample and collect) (page 18) and storing a sequence of intercepted packets associated with a call (i.e. VoIP call) (page 70), each packet containing speech data (i.e. voice) (pages 8 and 66), and an indication of a transmission time of said packet (i.e. STx) (page 65); means for storing with each intercepted packet an indication of an intercept time of said packet (i.e. RTx) (page 65); means for extracting a set of parameters from said sequence of packets wherein the means for extracting comprises means for generating a jitter parameter (i.e. JitterSD) for each of a sequence of stored packets in dependence upon the difference between the transmission time of a stored packet (i.e. ST2) and the transmission time of a preceding stored packet of the sequence (i.e. ST1); and

the difference between the intercept time of said stored packet (i.e. RT2) and the intercept time of said preceding packet (RT1) (page 65); and means for generating a consecutive positive jitter parameter (i.e. NumOfPositivesSD) for said stored packet in dependence upon the polarity of said jitter parameter for said stored packet and the polarity of said jitter parameter for immediately preceding stored packets wherein the consecutive positive jitter parameter defines the number of immediately preceding stored packets for which a polarity of the jitter parameter is positive (pages 66 and 72).

As noted above, the invention of Cisco teaches many of the features of the claimed invention and while the invention of Cisco does teach determining a consecutive positive jitter parameter (i.e. NumOfPositivesSD) for said stored packet in dependence upon the polarity of said jitter parameter for said stored packet and the polarity of said jitter parameter for immediately preceding stored packets wherein the consecutive positive jitter parameter defines the number of immediately preceding stored packets for which a polarity of the jitter parameter is positive (pages 66 and 72), Cisco does not explicitly indicate that the stored packets have been received consecutively.

Further, while the invention of Cisco does teach extracting a set of jitter parameters to assess speech quality of a VoIP network, Cisco does not explicitly include means for generating an estimated mean opinion score in dependence upon said set of parameters.

Magalhaes teaches transport level mechanisms for bandwidth aggregation on mobile hosts comprising means for determining a consecutive positive jitter parameter that is based on the consecutive positive jitter of packets which have been received consecutively (pages 167-168, "Bandwidth estimation", lines 1-37).

Bearden teaches network traffic generation and monitoring systems and methods for their use in testing frameworks for determining suitability of a network for target applications, such as VoIP network applications (0006, lines 1-10), comprising means for extracting a set of speech quality parameters, including jitter, generating an estimated mean opinion score in dependence upon the set of speech quality parameters (0085, lines 1-13) and storing the estimated mean opinion score on a computer-readable medium accessible by a user for visualization and analysis (0259, lines 1-19).

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco to explicitly indicate that the stored packets have been received consecutively, as taught by Magalhaes, because while the invention of Cisco is silent as to whether or not the positive jitter is based on packets received consecutively, Magalhaes suggests that the combination would have improved the system analysis of Cisco by determining growing system degradation/congestion by observing when the positive jitter increases without any intermittent negative jitter to cancel out the increase (pages 167-168, "Bandwidth estimation", lines 1-37).

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco to explicitly include means for generating an estimated mean

opinion score in dependence upon said set of parameters, as taught by Bearden, because, as suggested by Bearden, the combination would have improved the speech quality analysis of Cisco by employing a widely used, accepted, and understood scale of speech quality (0085, lines 1-13) and reducing the burden of a user to interpret the jitter results by instead providing the result in a clearly understandable numerical index of quality (0238, lines 24-38).

As noted above, the invention of Cisco, Magalhaes and Bearden teaches many of the features of the claimed invention and while the invention of Cisco specifically discloses generating a consecutive positive jitter parameter (i.e. NumOfPositivesSD) for said stored packet in dependence upon the polarity of said jitter parameter for said stored packet and the polarity of said jitter parameter for immediately preceding stored packets wherein the consecutive positive jitter parameter defines the number of immediately preceding stored packets for which a polarity of the jitter parameter is positive (pages 66 and 72) and Magalhaes specifically discloses determining a consecutive positive jitter parameter that is based on the consecutive positive jitter of packets which have been received consecutively to determine congestion (pages 167-168, "Bandwidth estimation", lines 1-37), the combination does not specify returning the count of the monitored traffic parameter (i.e. number positive jitter packets) to zero upon receipt of a packet having a non-monitored (i.e. non-positive) jitter value.

Scott teaches a method, system, and computer program for managing jitter as part of a VoIP system (column 1, lines 21-33) employing packet communication

(column 4, lines 40-52) in order to determine jitter as a traffic statistic of time-stamped packets (column 3, lines 38-50) wherein the traffic statistic is determined by counting a number of packets having a monitored traffic value and returning the count to zero upon receipt of a packet having a non-monitored value (column 6, line 65 to column 7, line 4).

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco, Magalhaes, and Bearden to specify returning the count of the monitored traffic parameter (i.e. number positive jitter packets) to zero upon receipt of a packet having a non-monitored (i.e. non-positive) jitter value, as taught by Scott, because the combination of Cisco, Magalhaes, and Bearden does teach counting the number of consecutive packets with positive jitter to determine the occurrence of congestion and Scott suggests that the combination would have provided a true count of the number of consecutive packets by resetting the count when a non-positive jitter is obtained, thereby providing a more accurate determine of congestion (column 6, line 65 to column 7, line 14).

5. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisco in view of Magalhaes, Bearden et al., and Scott, and further in view of U.S. Patent Application Publication No. 2003/0018450 to Carley.

As noted above, the invention of Cisco, Magalhaes, Bearden, and Scott teaches many of the features of the claimed invention and while the invention of Cisco, Magalhaes, Bearden, and Scott does teach extracting a set of parameters from a

sequence of packets including a jitter parameter, consecutive positive jitter parameter, and maximum value of the consecutive jitter parameter, the combination does not specifically include determining a variance value of the measured parameter and a subsequent average of the maximum and/or variance value.

Carley teaches a system and method for providing composite variance analysis for network operation of a packet based network (0002, lines 1-9 and 0017, line 1 to 0024, line 3) comprising means for extracting and storing a jitter parameter performance metric for a sequence of packets (0041, lines 1-23) determining a variance statistic for the performance metric and determining a subsequent standard deviation of the determined variance statistic (0047, line 4 to 0048, line 7), wherein the variance statistic includes a plurality of maximum values and standard deviations of sub-sequences of the performance metric (0068, lines 11-19). Therefore, Carley teaches determining both a maximum of the performance metric followed by a standard deviation of the maximum as well as a standard deviation of the performance metric followed by a subsequent standard deviation. It is further considered inherent that in order to determine each standard deviation, an average and variance must first be determined (see for example, Internet Glossary of Statistical Terms, "Variance" and "Standard Deviation").

It would have been obvious to one having ordinary skill in the art to modify the invention of Cisco, Magalhaes, Bearden, and Scott to include determining a variance value of the measured parameter and a subsequent average of the maximum and/or variance value, as taught by Carley, because the invention of Cisco, Magalhaes,

Bearden, and Scott does teach a method for assessing the quality of speech packets but provides no significant method for determining when a speech quality degrades below a desired level and the invention of Carley suggests that the combination would have improved the method of Cisco, Magalhaes, Bearden, and Scott by allowing the user to determine the quality with greater detail by determining how the performance of a given network server is performing with respect to any desired performance metric over time as well as determine whether the performance of a network service at any particular time is outside of acceptable limits (0040, lines 1-28).

### *Response to Arguments*

6. Applicant's arguments with respect to claims 1-5 and 9 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

Internet Glossary of Statistical Terms, "Variance" and "Standard Deviation" teaches the definitions for "Variance" and "Standard Deviation" as well as that in order to calculate the variance, a mean/average must first be determined, as well as that in order to calculate the standard deviation, a variance must first be determined.

U.S. Patent No. 6,868,094 to Bordonaro et al. teaches a method and apparatus for measuring network data packet delay, jitter, and loss.

Cisco, "Measuring Delay, Jitter, and Packet Loss with Cisco IOS SAA and RTTMON" teaches methods for determining jitter between consecutive packets.

Mpierce1, "Comments on draft-ietf-ippm-ipdv.05" teaches delay variation determination between consecutive packets.

Figueiredo et al., "Efficient Mechanisms for Recovering Voice Packets in the Internet" teaches packet loss and jitter determinations between packets.

U.S. Patent Application Publication No. 2003/0072269 to Teruhi et al. teaches a data transmission control method, program therefore and data transmission unit for determining packet quality.

U.S. Patent Application Publication No. 2002/0141392 to Tezuka et al. teaches a gateway apparatus and voice data transmission method.

U.S. Patent Application Publication No. 2002/0051464 to Sin et al. teaches a method for monitoring the quality of transmission across packet-based networks.

U.S. Patent No. 6,928,473 to Sundaram et al. teaches a method for measuring network jitter on application packet flows.

U.S. Patent No. 6,363,429 to Ketcham teaches a method and system for automatic determination of priority data streams on computer networks.

U.S. Patent No. 6,327,274 to Ravikanth teaches a method for estimating relative skew between clocks in packet networks.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey R. West
Primary Examiner
Art Unit – 2857

October 29, 2007